8A

Utilization Status

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8A Month-In-Review

EXPRESS Rack 6 As EXPRESS Rack 4:

- All PTCS testing is complete
  - ARCTIC
  - BPS
  - CGBA
  - CPCG-H
- Includes Joint Operations test in support of EXPRESS Rack 6, currently manifested on ULF-1
  - Will most likely be demanifested from ULF-1
- Paper closure is still ongoing (hint, hint)

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8A Looking Forward

- Main issues remaining are the 2 crew squawks
  - BPS handles
  - ARCTIC fluid lines
- Remaining activities at KSC
  - BPS fitcheck scheduled for 3/8
  - ARCTIC ITCS servicing
  - Middeck installations and IVTs

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Insert Middeck Summary Chart

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ISS Middeck Payload Research Objectives

- **Biomass Production System (BPS)**
  - Measure the effects of microgravity on photosynthesis and transpiration of wheat seedlings
- **Biotechnology Refigerator (BTR)**
  - Provide a controlled environment for the transportation of conditioned samples from orbit
- **Commercial Generic Bioprocessing Apparatus (CGBA)**
  - Characterize the effects of long-term exposure to weightlessness on the process of fermentation, used in the production of antibiotics
  - May lead to development of methods for improving production efficiency in terrestrial pharmaceutical processing facilities
- **Commercial Protein Crystal Growth - High Density (CPCG-H)**
  - Grow high-quality crystals of selected proteins so that their molecular structures can be studied
  - May provide information that can be used in the development of new drugs
- **Protein Crystal Growth - Enhanced Gaseous Nitrogen (PCG-EGN) Dewar**
  - Demonstrate a low-cost platform for conducting a large number of crystallization screening experiments to explore optimum growth conditions for a broad range of macromolecules in microgravity
  - Postflight analysis can lead to new drug development, shorten drug development, and ultimately provide improvements in the understanding of various disease states
- **Advanced Astroculture (ADVASC)**
  - Explore the benefits of using microgravity to create tailor-made crops that withstand inhospitable climates, resist pestilence, and need less space to grow
- **Protein Crystal Growth - Single Locker Thermal Enclosure System (PCG-STES)**
  - Grow biological macromolecular crystals to determine their structure and the biological processes in which they are involved
  - Understanding these structures may impact the studies of medicine, agriculture, the environment, and other biosciences

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